Sub L7

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region formed in the vicinity of at least one of said source-channel boundary and said drain-channel boundary in said semiconductor layer, said region containing one or more elements selected from the group consisting of carbon, nitrogen, and oxygen at a concentration of 1×10^{19} atoms/cm^3 or more,

wherein one boundary of said region is located within the channel region and the other boundary is located within one of the source region and said drain region.

Cont. K1

79. (Amended) A device according to claim 78 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

K2

Sub L7

84. (Amended) A semiconductor device comprising:

K3

a semiconductor layer including a channel region and source and drain regions in contact with said channel region at a source-channel boundary and a drain-channel boundary, respectively;

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region having a higher energy band gap than any of said source, drain, and channel regions,

wherein said region is formed in the vicinity of at least one of said source-channel boundary and said drain-channel boundary and one boundary of said region is located within the channel region.

Sub L3

90. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels; and

at least one driver circuit for driving said pixels formed over the substrate, said driver circuit comprising:

IC4

a semiconductor layer including a channel region and source and drain regions in contact with said channel region at a source-channel boundary and a drain-channel boundary, respectively;

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region formed in said semiconductor layer, said region containing one or more elements selected from the group consisting of carbon, nitrogen, and oxygen at a concentration of 1×10^{19} atoms/cm^3 or more,

wherein said region is formed in the vicinity of at least one of said source-channel boundary and said drain-channel boundary and one boundary of said region is located within the channel region.

91. (Amended) A device according to claim 90 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

IC5

Sub L4

96. (Amended) A semiconductor device comprising:

IC6

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels; and

Sub L4 at least one driver circuit for driving said pixels formed over the substrate, said driver circuit comprising:

a semiconductor layer including a channel region and source and drain regions in contact with said channel region at a source-channel boundary and a drain-channel boundary, respectively;

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region having a higher energy band gap than any of said source, drain, and channel regions,

wherein said region is formed in the vicinity of at least one of said source-channel boundary and said drain-channel boundary and one boundary of said region is located within the channel region.

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97. (Amended) A device according to claim 96 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

Sub L8 102. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels; and

at least one driver circuit for driving said pixels formed over the substrate, said driver circuit comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

Cont 1L Sub L6 1C8

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween;

wherein said semiconductor layer has at least one region including carbon and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

wherein one boundary of said region including carbon is located within the channel region and the other boundary is located within one of the source region and said drain region.

1C9

109. (Amended) A device according to claim 102 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

Sub L7

110. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels; and

at least one driver circuit for driving said pixels formed over the substrate, said driver circuit comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween;

wherein said semiconductor layer has at least one region including nitrogen and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

cont. of IC9 Sub L6

wherein one boundary of said region including nitrogen is located within the channel region and the other boundary is located within one of the source region and said drain region.

IC10

117. (Amended) A device according to claim 110 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

Sub L7

118. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels; and

at least one driver circuit for driving said pixels formed over the substrate, said driver circuit comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween;

wherein said semiconductor layer has at least one region including oxygen and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

wherein one boundary of said region including oxygen is located within the channel region and the other boundary is located within one of the source region and said drain region.

121. (Amended) A device according to claim 118 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

126. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels, each of said pixels comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween;

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region formed in the vicinity of at least one of a source-channel boundary and a drain-channel boundary in said semiconductor layer, said region containing one or more elements selected from the group consisting of carbon, nitrogen, and oxygen at a concentration of 1×10^{19} atoms/cm^3 or more, wherein one boundary of said region is located within said channel region.

129. (Amended) A device according to claim 126 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

134. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels, each of said pixels comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween;

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween; and

a region having a higher energy band gap than any of said source, drain, and channel regions, said region formed in the vicinity of at least one of a source-channel boundary and a drain-channel boundary in the semiconductor layer,

wherein one boundary of said region is located within said channel region.

135. (Amended) A device according to claim 134 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

140. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels, each of said pixels comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween,

wherein said semiconductor layer has at least one region including carbon and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

Cont'd Sub L 10 1C16

wherein one boundary of said region including carbon is located within the channel region and the other boundary is located within one of the source region and said drain region.

1C17

141. (Amended) A device according to claim 140 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

Sub L 11 1C18

146. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels, each of said pixels comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween;

wherein said semiconductor layer has at least one region including nitrogen and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

wherein one boundary of said region including nitrogen is located within the channel region and the other boundary is located within one of the source region and said drain region.

1C19

151. (Amended) A device according to claim 146 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

Sub L12

152. (Amended) A semiconductor device comprising:

a pixel portion formed over an substrate, said pixel portion comprising a plurality of pixels, each of said pixels comprising:

a semiconductor layer including a channel region and source and drain regions with said channel region interposed therebetween; and

a gate electrode adjacent to said channel region with a gate insulating film interposed therebetween;

wherein said semiconductor layer has at least one region including oxygen and overlapping both a portion of said channel region and a portion of said source and drain regions at concentration of 1×10^{19} atoms/cm^3 or more, and

wherein one boundary of said region including oxygen is located within the channel region and the other boundary is located within one of the source region and said drain region.

IC20

157. (Amended) A device according to claim 152 wherein said semiconductor layer is an active layer of a thin film transistor selected from the group consisting of stagger type, inverted stagger type, planar type, and inverted planar type transistors.

IC21